CHAPTER C
RIGHT OF WAY

INDEX

GETTING STARTED

1. Open project folder. Create one if necessary.
   a) Open Windows Explorer
   b) Go to u:\rd\prj
   c) Create New Folder, following the naming convention **COUNPCN#**

2. Create & Open **rPCN#.dgn**

3. Attach reference files **PCN#lt.dgn** and **tPCN#(r, u, or s).dgn**
   a) Files are located at **u:\regionXX\prj\COUNPCN#**

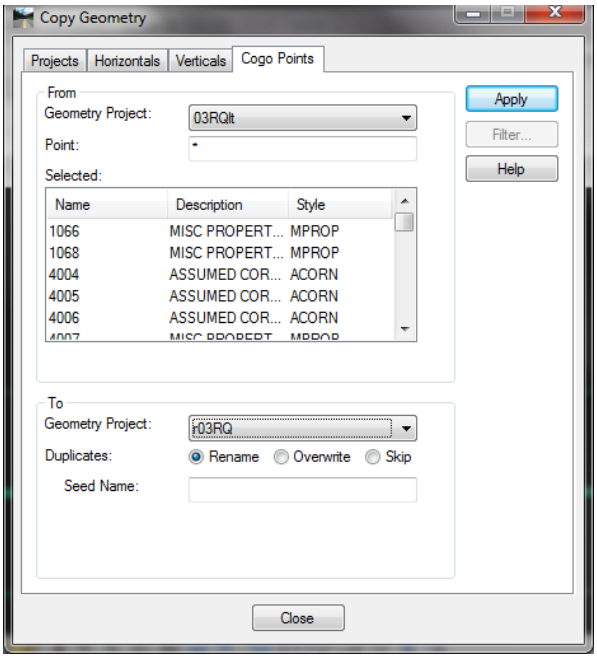
4. **File > Save Setting**

Hint: After files are referenced, it's helpful to do a fit view.

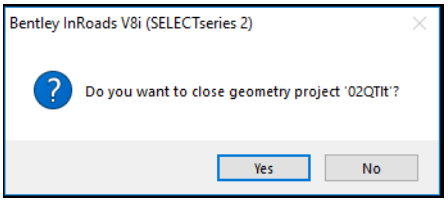
5. Using InRoads Create & Open **rPCN#.alg**
   a) **File > New > Geometry** tab
      1. **Type: Geometry Project**
      2. **Name: rPCN#**
      3. **Apply, Close**
   b) **File > Save As** (Make sure it is saving to correct project folder)
      1. **File Name: rPCN#** (this will populate once type is selected)
      2. **Save as type: Geometry Project (*.alg)**
      3. **Save, Cancel**

Hint: It's helpful to have Write Lock, Delete Lock, & Pen Lock **ON** at all times while in InRoads.

6. Copy **PCN#lt.alg** into **rPCN#.alg**
   a) **File > Open**
      1. **Look in:** u:\regionXX\prj\COUNPCN#\PCN#lt.alg
         The geometry file must be open before it can be copied.
      2. **Open, Cancel**
   b) **Geometry > Copy Geometry > Cogo Points** tab
      1. Under **From**
         a. **Geometry Project:** Select **PCN#lt**
         b. **Point:** * (wildcard), so everything is copied
      2. Under **To**
         a. **Geometry Project:** Select **rPCN#**
         b. **Duplicates:** Rename
      3. **Apply, Close**
      4. Repeat for **Horizontals,** if necessary.

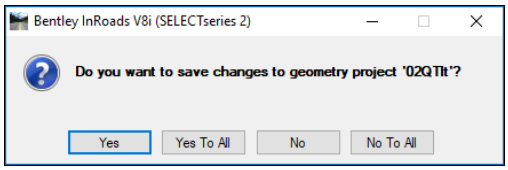


7. Close **PCN#lt**
   a) Under **Geometry Project**
      1. Select **rPCN# >** right click **> Set Active**
      2. Select **PCN#lt >** right click **> Close**
         a. The following dialog box appears…



Select **Yes**.

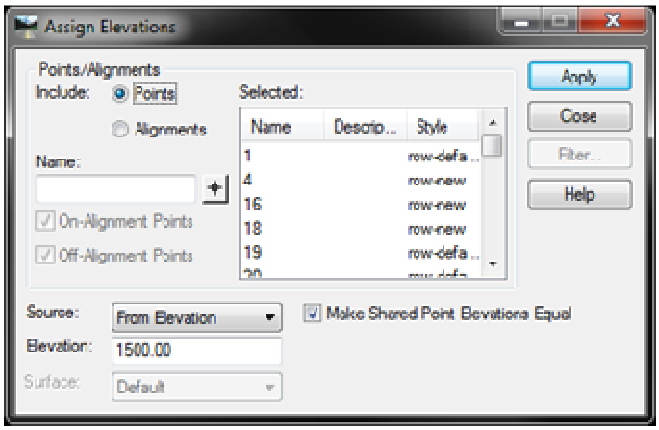
         b. Another dialog box appears…



Select **No**.

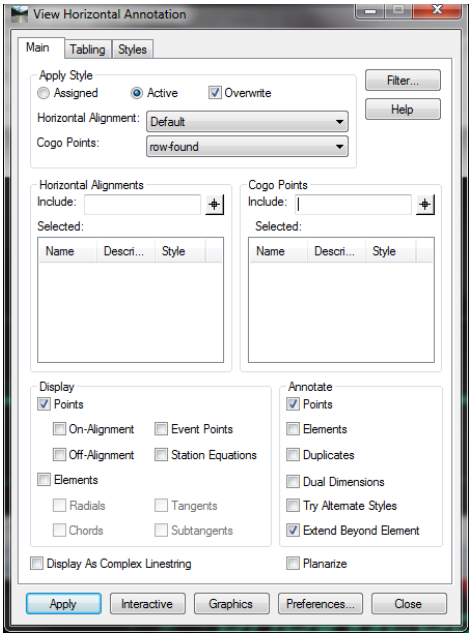
8. Make **rPCN#** the Active Geometry file
   a) **Geometry > Active Geometry**
      1. Select **rPCN#**
      2. **Apply, Close**

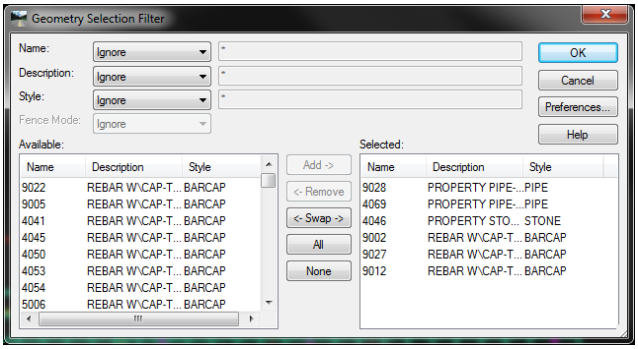
9. Change the elevation of all points to 1500
   a) **Geometry > Utilities > Assign Elevations**
      1. Toggle on **Points**
      2. **Name:** * (wildcard), point numbers, or select point
      3. **Source: From Elevation**
      4. **Elevation: 1500**
      5. Check **Make Shared Point Elevation Equal**
         a. This will pick up the PI's, etc that are being shared with the point
      6. **Apply, Close**
   b) **File > Save > Geometry Project**



10. Display Cogo Points. The land tie Cogo point style will need to be changed to row-found or row-assumed before displaying.
    a) **Geometry > View Geometry > Horizontal Annotation > Main** tab
        1. **Preferences … > row-cogo-points > Load, Close**
        2. Under **Apply Style**
            a. Toggle on **Active** & check **Overwrite**
            b. **Cogo Points : row-found** or **row-assumed**
        3. Under **Cogo Points**
            a. **Include:** * (wildcard) for all points or type point numbers
            b. **Filter > Geometry Selection Filter** dialog box displays
                1. Under **Available**
                    a) Sort the points by style or description, & highlight the points needed
                    b) **Add**, this action moves points to **Select:** box
                    c) Assumed corner will be displayed as **row-assumed**
                    d) All other corners will be displayed as **row-found**
                    e) After the points are selected > **Ok**
            c. **Apply, Close**

Hint: It's helpful to do a fit view to see the Cogo points.

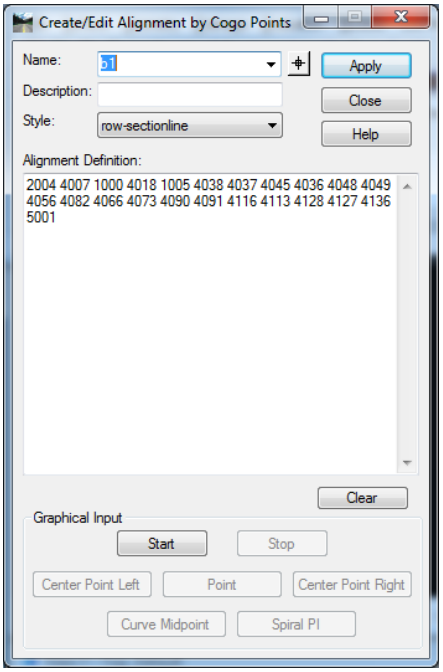




11. Save Geometry Project
    a) **File > Save > Geometry Project**

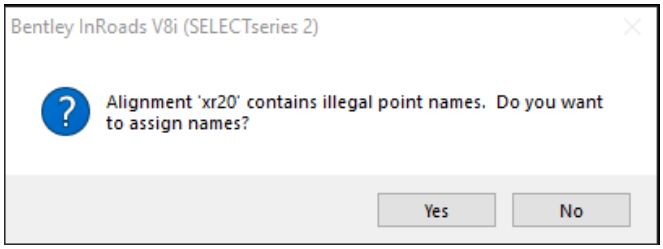
ESTABLISHING EXISTING RIGHT OF WAY

1. Change Seed Alignment Name for property boundaries (section line, ¼ line, property line, etc.)
   a) **File > Project Options > Geometry** tab
      1. **Seed Alignment Name: b1**
      2. **Seed Point Name: 100** (optional)
      3. **Preferences**
         a. **Default > Save > Close**
      4. **Apply, Close**



2. Create Alignment (section line, ¼ line, property line, etc)
   a) **Geometry > Utilities > Create/Edit Alignment by Cogo Points**
      1. **Name:** b# or leave blank (it will assign the next available #)
      2. **Description:** (optional)
      3. **Style:** Select from pull down
      4. **Alignment Definition:** type in point #
         OR
      5. Under **Graphical Input**
         a. **Start >** data near points **> stop**
            1. Have the point snap lock on in InRoads
      6. **Apply, Close**

3. Establishing existing highway row & section line row, etc.
   a) Change Seed Alignment Name for existing row
      1. Follow steps from number 1 above
         a. **Seed Alignment Name: e1**
         b. Other settings will remain the same.
   b) Parallel Horizontal Alignment
      1. **Geometry > Utilities > Parallel Horizontal Alignment**
         a. **Mode: Specify**
         b. Under **From**
            1. **Horizontal Alignment:** Select alignment to parallel
            2. **Offset:** type in distance
         c. **Under To**
            1. **Alignment Name:** e# or leave blank (the next available number will be assigned)
            2. **Description:** Fill in (optional)
            3. **Style: row-exist** (depends on required line type)
            4. **Apply, Close**
   c) Create Cogo points for alignments.
      1. To create usable Cogo points for an alignment it is necessary to edit the alignment. When an edited alignment is selected using **Create/Edit Alignment by Cogo Points,** the following dialog box appears…



Select **No**. If Yes is selected, alignment numbers are assigned, not cogo numbers. These are two different sets of numbers. To make these numbers usable Cogo points, ensure the edited alignment is selected and do the following:

a. **Geometry > Horizontal Curve Set > Events**
   1. Under **Add As**, toggle on **Alignment Point to Cogo**.
   2. **Description:** (Optional)
   3. **Style: row-exist** (varies, depending on design style)
   4. **Apply**, **Close**.

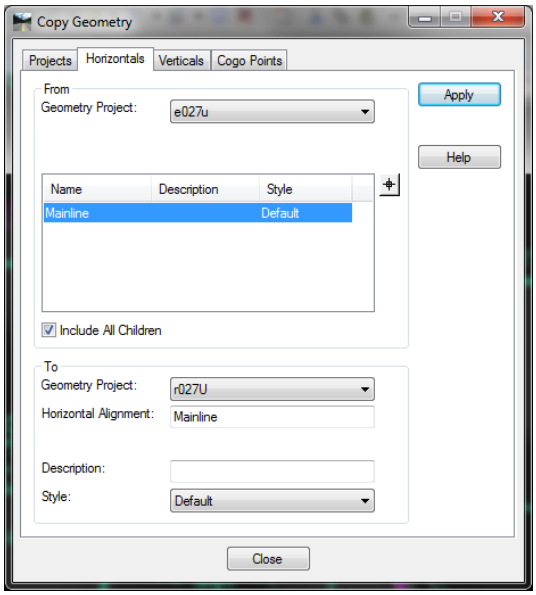
When the edited alignment is selected, the same dialog box as above will appear…

Select **Yes**. The alignment numbers and cogo numbers will be the same number.

d) **File > Save > Geometry Project**

ESTABLISHING PROPOSED RIGHT OF WAY

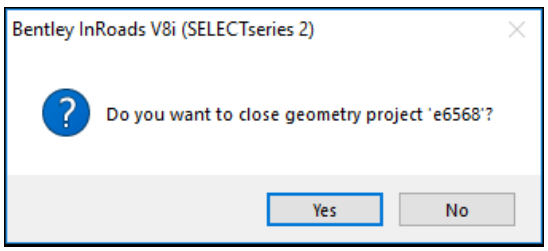
1. Copy the Designer's Alignments.
   a) Right click on **Geometry Project > Open**
      1. **rPCN#** & **ePCN#**
      2. **Open**



   b) **Geometry > Copy Geometry > Horizontals** Tab**.**
      1. Under **From**
         a) **Geometry Project:** Select **ePCN#**
         b) Select **Mainline** (or the appropriate **Horizontal Alignment)**
      2. Under **To**
         a) **Geometry Project:** Select **rPCN#**
         b) **Horizontal Alignment: Mainline** (or the appropriate **Horizontal Alignment)**
         c) **Description:** Fill in (Optional)
         d) **Style:** Keep the same style as line selected
      3. **Apply**, **Close**

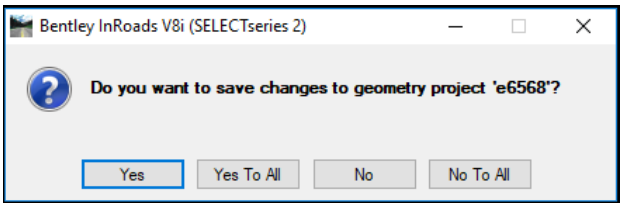
2. **!!THIS IS VERY IMPORTANT!!** Make the rPCN# the Active Geometry Project and **CLOSE** the ePCN#. This closes the COPY of the ePCN# and **MUST** be done promptly after the alignments have been copied.
   a) Under Geometry Projects
      1. Select **rPCN# > right click > Set Active**
      2. Select **ePCN# > right click > Close**

The following dialog box appears…



Select **Yes**.

Another dialog box appears…



Select **No**.

3. Displaying the Alignment
   a) **Geometry > View Geometry > Active Horizontal**

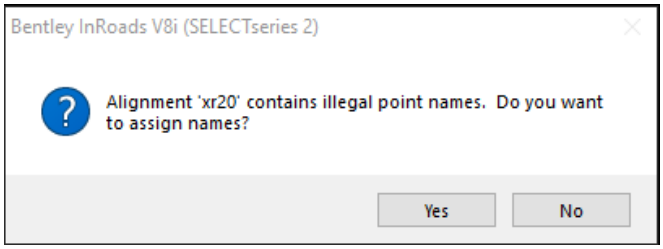
4. View the stationing for the Horizontal Alignment.
   a) **Set Active** alignment needing stationing added
   b) **Geometry > View Geometry > Stationing**
   c) View Stationing Dialog Box
      1. **Horizontal Alignment: Mainline** (or the appropriate **Horizontal Alignment)**
      2. **Preference > Default or Urban > Load > Close**
      3. **Apply**, **Close**
   d) When stationing size needs to be changed:
      1. **File > Project Options**
      2. **Factors > Preferences**
      3. Select project type **> Load > Close**
      4. **Apply, Close**

5. Parallel Horizontal Alignment
   a) **Geometry > Utilities > Parallel Horizontal Alignment**
      1. **Mode: Interactive by Element**
      2. Under **To**
         a) **Alignment Name: A#**
         b) Description: Fill in (optional)
         c) **Style: row-new**
      3. **Apply**

   b) In MicroStation (follow prompts in bottom left hand corner)
      1. Select **Alignment** (line wanting to parallel)
      2. Select the **first element** and **last element**
      3. **Key in distance** (base bar) & use positive or negative (depending on direction/side of road)
      4. **Accept/Reject**

NOTE: When shifting between Create/Edit Alignment by Cogo Points and Parallel Horizontal Alignment, remember to close the Create/Edit window before paralleling more alignments.

6. Create Cogo points for alignments.
   a) To create usable Cogo points for an alignment it is necessary to edit the alignment. When an edited alignment is selected using **Create/Edit Alignment by Cogo Points**, the following dialog box appears…



Select **No**. If Yes is selected, alignment numbers are assigned, not cogo numbers. These are two different sets of numbers. To make these numbers usable Cogo points, ensure the edited alignment is active and do the following:

b) **Geometry > Horizontal Curve Set > Events**
1. Under **Add As**, toggle on **Alignment Point to Cogo**.
2. **Description:** (Optional)
3. **Style: row-new** (varies, depending on design style)
4. **Apply**, **Close**.

When the edited alignment is selected, the same dialog box as shown above will appear…

Select **Yes**. The alignment numbers and cogo numbers will be the same number.

c) **File > Geometry > Save**

7. Updating horizontal alignments.
When changes to any alignments effect the Proposed Right of Way, the **rPCN#** alignment will need to be updated**.** If the alignment already exists within the **rPCN#,** delete it by:

a) **Geometry > Delete Geometry**
1. **Type: Horizontal Alignments**
2. **Geometry Project: rPCN#**
3. Select the **Alignment** to be deleted.
4. **Apply, Close**

Proceed in copying the alignments from the ePCN# as previously described in 1b.

MOSAIC & RIGHT OF WAY PLANS

1. Create and open **mosaic.dgn.**
2. Attach the reference files in this order: **dPCN# (d); rPCN# (r); tPCN# (t); cgPCN# (cg);** and **fPCN# (f)** (when needed**);** to **mosaic.dgn**

Option 1 (Urban Photos): Attach raster reference files to mosaic.dgn:

1. Use Horizon Aerial photo (#.tif). If none are available snip photos from Arc Map (#.jpg)
   a) **Open Arc Map 10.3.1 > Road Design Map.mxd**
   b) Add Imagery
      1. **Add Data > Add Basemap > Imagery > Add**
      2. Toggle off all layers except Imagery
   c) Rotate View (if needed)
      1. **Right click** on **Layers > General Tab > Rotation: type in angle**
   d) **Zoom** into location of project
      1. Urban Photos use **Scale – 1:800**
   e) Snipping Photos
      1. Use the **Snipping Tool**
      2. **Save As #.jpg** file to **u:\rd\AerialPhotos\counpcn#\ #.jpg**
   f) Find date for imagery (can vary throughout project)
      1. **Identify >** select imagery > year displayed on line SRC_DATE2

2. **Raster Manager > File > Attach > u:\rd\AerialPhotos\counpcn#\#.tif** or **#.jpg**
   a) Attach all the #.tif or #.jpg files
   b) Ensure the toggle is **ON** for the Open Raster Files Read Only.

3. **Raster Manager > Edit > Rotate** images the direction of the project, if needed.

4. Draw lines between image points and topography points.
   a) Find common points in the #.tif and the topography reference file. (Buildings, curb and gutter, etc.)
   b) Three reference lines per image will be needed.
   c) Use 2 views, one for the photo and one for the project.
   d) Do not snap lines directly to topography reference file.

5. **Edit > Warp >** method-**Similitude** (move, scale and rotate)
   a) Start with end of lines on image then to match topography line end.
   b) Repeat for each #.tif file

6. **Copy** all text from rpcn#.dgn. Change to color 4.
   a) Refer to the Mosaic Information on the next page for further direction.

7. **Save Settings**

8. **Save As** rowplan.dgn

Option 2 (Rural Photos): Attach raster reference files using FSA Aerial photos to mosaic.dgn:

1. **Create > New**
   a) **Name: Mosaic.dgn > Browse**
      1. **U:\rd\Bentley\V8i\MicroStation\Seed\ENGLISH\(North or South Zone)**
      2. Zone chosen is dependent on County location.

2. **Detach** all raster files not to be used.
   a) Select all rasters (**highlight one** and then **ctrl A)**
   b) De-select the county desired (**ctrl select**)
   c) Select **detach** in the raster file manager and the desired county remains.

3. **Copy** all text from rpcn#.dgn. Change to color 4.
   a) Refer to the Mosaic Information on the next page for further direction.

4. **Save Settings**

5. **Save As** rowplan.dgn

NOTE: Ensure Open Raster Files Read Only is toggled on when attaching raster files.

Option 3 (Urban and Rural Photos): Identify the County and the State Plane Coordinate (SPC) Zone for the project. The SPC Zone for each County is listed in the CADD Procedures Manual, **Chapter A - General, Page A9**.

1. **File > New**
   a) **Name: Mosaic.dgn > Browse**
      1. **U:\rd\Bentley\V8i\MicroStation\Seed\ENGLISH**
      2. Use one of the following seed files.
         a. **NorthZoneFSA.dgn** or **SouthZoneFSA.dgn**
         b. **NorthZoneSPC.dgn** or **SouthZoneSPC.dgn**

2. Or set the Geographic Coordinate System in an existing file.
   a) **Tools > Geographic > Select Geographics Coordinate System Geographic Coordinate System > From Library** (SD83-NF or SD83-SF)

3. **Attach** the DGN (with the FSA image attached) as a reference.
   a) **References > Tools > Attach**
   b) **U:\rd\Misc\Maps\FSA\2018** or most current year available.
      1. Using the Attachment Method: Geographic – Reprojected
   c) File Name will match County Abbreviation.
   d) Recommend clipping this reference.

NOTE: Element transparency is preset to 40 for raster references – darker/lighter images can be obtained by toggling Transparency under view attributes. In addition, level transparency set with Level Manager and/or reference transparency set with Reference Manager can further darken/lighten the image.

MOSAIC INFORMATION

1. Horizontal Alignment with Stationing, Begin / End Note, Equations, etc.
2. Section Lines, 1/4 Lines, Lot Lines, Property Lines, etc.
3. Existing Right of Way Lines
4. Section-Township-Range
5. Subdivisions, Lots, Blocks, Tracts, City, etc.
6. Present Highway, Intersecting Roads, Local Landmarks
7. Work Limits, Entrances
8. Proposed Right of Way Lines (Abandonment, Private Access, etc.)
9. Dimension Existing and Proposed Right of Way
10. Curb & Gutter, Edge of Shoulder
11. North Arrow, Photo Legend (Mosaic ONLY)
12. Sidewalk Label, Colored Concrete, Grass Boulevard, Pavement Markings if available (Mosaic Only & Use Photo Legend Settings)

Feature	Level	Color	Line Style	Weight	Transparency
Grass Boulevard	3	3 (& Fill)	0	1	TIF – 70, FSA – 60
Colored Concrete	3	6 (& Fill)	0	1	TIF – 70, FSA – 60
Sidewalk Label	3	2	(All CAPS, Text size – Fit in sidewalk area)		
Pavement Markings		12	Use Level Manager (see instructions below)		

RIGHT OF WAY PLAN INFORMATION (IN ADDITION TO MOSAIC INFORMATION)

14. Project Number, Sheet Number, Total Sheets, Flown Date, North Arrow
15. Hatch Previously Acquired Right of Way within Proposed Right of Way Lines
16. Parcel Numbering with Ownership Note and Right of Way Taking Area
17. Temporary Easement Note with Area
18. Stationing for Existing Right of Way Lines Crossing Horizontal Alignment

Refer to Figure 9-12 Right of Way Plan Sheet Guide in **Chapter 9**

Mosaic Scale: In mosaic.dgn all text will need to be scaled (Urban, Suburban, & Rural) according to the following table.

Mosaic Scale *	Urban (40)	Suburban (100)	Rural (200)
Land Owner Descriptions, Lots, Government Lots, Blocks	2	1.8	1.5
Dimensions, Section Line,1/4 Lines, 1/16 Lines	2.5	2.3	2
Street Names (**Bold** Mainline & Cross Roads), City Limits	3	2.8	2.5

*When plotting/printing the mosaic, if possible, leave approximately 6" of white space on EACH SIDE for notes.

PAVEMENT MARKINGS (FOR MOSAIC ONLY)

1. **Settings > View Attributes >** Turn ON **Level Manager**
2. **Settings > Levels > Manager**
3. Level Manager Dialog Box
   a) Symbology: **Overrides**
   b) **Right Click** on one folder (mosaic, rPCN#, dPCN#, cgPCN#, tPCN#, fPCN#, …)
      1) **Left Click** under Name column **> Select All**
      2) **Left Click** under one of the remaining columns (Color, Style, Weight) **> All Overrides Off**
      3) Repeat for each column in each folder
   c) **Select** Level showing Pavement markings **> Right click** on space next to level and under Color Column **> Color 12**

RIGHT OF WAY PHOTO LEVELS AND REFERENCE LEVELS

STArow.dgn 1 thru 59
(d) dPCN# 13, 16, 17 & 32
(r) rPCN# 1, 2, 13, 21-29 (7, 8 opt.) *
(t) tPCN#? (1-63 temp)
(cg) cgPCN# 19
(p) planrow.bdr 1-56,

*If using a different Mainline Alignment scale in the same project, open In Roads and redisplay the stationing to the desired scale in STArow.dgn.

Right of Way Plan Sheet Border

1. Copy **planrow.bdr** and paste into project folder
   a) **planrow.bdr** is located at **U:\rd\Bentley\V8i\MicroStation\bdr\English**
2. Enter project number and flown date into title block

STArow.dgn (Right of Way Plans)

1. Open **rowplan.dgn**

2. Attach **planrow.bdr**
   a) Use the reference tool bar to move and rotate border.
   b) Scale border for suburban and urban projects using the right of way plan sheet table.

3. Create **STArow.dgn**
   a) **Save As** the **STArow.dgn,** move border and **Save Settings**, continue process until project is captured.
      1. Rural photos show section line to quarter line.
      2. Suburban photos show approximately 16 stations along the alignment.
      3. Urban photos show approximately 6 stations along the alignment.
   b) Rotate the view the using Z axis L to R (if needed).
   c) Turn off the #.tif(s) not needed for each STArow.dgn

4. Clip/cut all referenced and raster files to fit plan sheet.

5. Photos need to include project information. Refer to Mosaic/Right of Way Plan Information and STArow.dgn Table.

6. Parcel Notes
   a) When more than one area is shown on a plat, combine the areas into one note for the photos.
   b) Attach construction dgns and copy temporary easement notes.
   c) Refer to figures in Chapter 9 for examples of right of way photos.

RIGHT OF WAY PLAN SHEET TABLE

All font is Arial.

AS = 1 200 Scale Rural (11 x 17 sheet) Description	Text-(Size)	Level	Color	Weight
Owner name, description	18	10	4	
Lot, BLOCK, tract, dimension, Section Line, ¼ Line, etc.	18	20	4	
Proposed ROW dimension	18	10	4	
Temporary easement note, alignment crossing stationing, begin and end note	18	10	Varies	Varies
OUTLOT	20	20	4	
ADDITION	22.5	20	4	
Section - Township - Range	30	20	4	
City	45	20	4	**Bold**, *Italic*
Existing ROW hatching	Spacing 30; Angle 45	21	50	0; Line Style 0
Easement hatching	Spacing 10; Angle 45	13	3	0; Line Style 1

AS =.5 100 Scale Suburban (11 x 17 sheet) Description	Text-(Scale)	Level	Color	Weight
Owner name, description	9	10	4	
Lot, BLOCK, tract, dimension, Section Line, ¼ Line, etc.	9	20	4	
Proposed ROW dimension	9	10	4	
Temporary easement note, alignment crossing stationing, begin and end note	9	10	Varies	Varies
OUTLOT	10	20	4	
ADDITION	11	20	4	
Section - Township - Range	16	20	4	
City	22.5	20	4	**Bold**, *Italic*
Existing ROW hatching	Spacing 15; Angle 45	21	50	0; Line Style 0
Easement hatching	Spacing 5; Angle 45	13	3	0; Line Style 1

AS = .2 40 Scale Urban (11 x 17 sheet) Description	Text-(Scale)	Level	Color	Weight
Owner name, description	3.6	10	4	
Lot, BLOCK, tract, dimension, Section Line, ¼ Line, etc.	3.6	20	4	
Proposed ROW dimension	3.6	10	4	
Temporary easement note, alignment crossing stationing, begin and end note	3.6	10	Varies	Varies
OUTLOT	4	20	4	
ADDITION	5	20	4	
Section - Township - Range	6	20	4	
City	9	20	4	**Bold**, *Italic*
Existing ROW hatching	Spacing 10; Angle 45	21	50	0; Line Style 0
Easement hatching	Spacing 2.5; Angle 45	13	3	0; Line Style 1

PLAT CREATION

1. Create/Open **STAp.dgn**
   a. Example: A plat beginning at 10+00 would be 010p and beginning at 256+90 would be 256p
2. **Attach** reference file rPCN#.dgn (bring in at Full Scale)
3. Place and scale plat border cell
   a. Scale border to encompass entire property being defined by the plat
4. Add basic project information in border
   a. eg. project number, county, datum, drawn by
5. Levels to have on from rPCN# **22-26, 28, 29**
6. **Save As** for each plat
   a. **Move** and **Rescale** plat border
   b. If more than one plat is needed for same stationing add 1 behind the file name (ex. 256p1, 256p2)
7. Clip reference file to fit border and Save Settings
8. Copy property specific information
   a. Property and other text, proposed Right of Way, etc.
9. Generate and place tables/area notes
   a. eg. Right of Way table, Right of Way areas, and dimension area/ties
10. Add property specific information
    a. eg. parcel information, hatch existing Right of Way area, shade proposed area
11. Verify and/or edit legal description
12. Create file in plot organizer and add plats in numerical order

NOTE: Refer to Plat Table for information needed.

PLAT TABLE

Refer to Figure 9-3 Plat Guide in Chapter 9

Description	Level	Color
Levels to have on from the rpcn# – 22-26, 28		
1. Parcel		
2. Heading	1	4
3. Property Description	1	4
4. Project		
5. County		
6. Scale		
7. Legend		
8. North Arrow		
9. Corner Description	20	0
10. Corner Coordinates	20	0
11. Corners Ties	1	4
12. Section Line	20	50
13. Existing Right of Way Dimension	20	50
14. Proposed Right of Way Dimension	20	50
15. Lot, Block, Tract, Subdivision	20	50
16. Existing Right of Way(hatched) - angle 45° - spacing 30 - weight 0 - line style 0	20	50
17. Proposed Area (shaded) – fill – opaque – outline color 10 – weight 5	1	9
18. Dimension Table	1	4
19. Acreage Note – Proposed (**Bold**) – Existing	1	4
1. Section Number (Urban Only)	20	50
21. Dimension Label – leader lines – line style 1- weight 0	1	9
22. 1/16 Line	20	50
23. Present Highway	20	50
24. Property Line	20	50
25. City – Italic, All CAPS	20	50
26. Street	20	50
27. 1/4 Line	20	50
28. Datum Note	20	4
29. Revised Date	1	4
30. Drawn By: Date:		
31. Checked By: Date:		
32. Project Control Number		
33. File Number		
34. Inset – line style 3 – weight 2	20	9
35. Proposed ROW Lines on Easement/Exhibit (if needed) – line style 2 – weight 1	27	9
36. Temporary Easement (hatched) - angle 45° - spacing 30 - weight 0 - line style 1	13	3

Plat Scales	
a. 1” = 20’ scale = 0.06667	e. 1” = 60’ scale = 0.20000
b. 1” = 30’ scale = 0.10000	f. 1” = 100’ scale = 0.33333
c. 1” = 40’ scale = 0.13333	g. 1” = 200’ scale = 0.66667
d. 1” = 50’ scale = 0.16667	h. 1” = 300’ scale = 1.00000

Text on Plats	20	30	40	50	60	100	200	300
Lot, Dimension, Section Line, BLOCK, tract, Highway/Street, Aliquot Part, OUTLOT	2	3	4	5	6	10	20	30
ADDITION	3	4	5	6	7.5	12.5	25	37.5
Section - Township - Range	3	4.5	6	7.5	9	15	30	45
City - Italic	4	6	9	10	12	20	40	60

TRANSPARENCY ON PLATS

Option 1

1. Turn on Level Overrides
   a) **Settings > View Attributes >** turn on **Level Overrides**

2. Level Manager Settings
   a) **Tools > Levels > Level Manager**
   b) Select dgn in left column accordingly
      1. Under Style and Weight Columns (both rfile.dgn and plat.dgn)
         a) Right Click **> All Overrides Off**
      2. Under Color Column (plat.dgn)
         a) L19 (Transparent Text) – Color **11**
         b) L30 (Move all Shaded Shapes to Level 30) – Color **Overrides Off**
         c) L40 (Masking) – Color **Overrides Off**
         d) L45 (Print Border) – Color **Overrides Off**
      3. Under Color Column (rfile.dgn)
         a) L29 (Transparent Existing ROW Lines) – Color **11**

NOTE: All other Levels in both dgns should be Color 0.

3. Adding to Print Organizer
   a) Create Print Definitions Dialog Box
      1. Under **Input Files**: **Add >** Select plat.dgn **> Done**
      2. Under Print style name: **Browse >** Select **11x17 Sheets > Ok**
      3. **Ok**

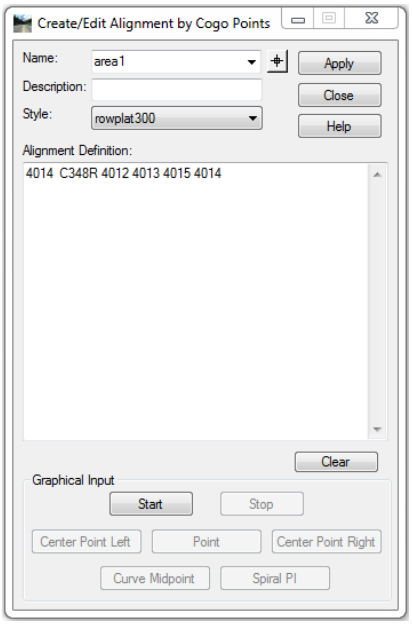
Option 2

1. Turn on Transparency
   a) **Settings > View Attributes >** turn on **Transparency**

2. Adjust transparency in Element Information
   a) Under **General** Tab
      1. Change **Transparency** to **70**

CREATING AREAS & TIE ALIGNMENTS

1. Establishing an Alignment
   a) **Geometry > Utilities > Create/Edit Alignment by Cogo Points**



1. **Name: area#** or **T#** (or leave blank, if left blank, the previously set preference for the *seed alignment name* will automatically assign the next available alignment number).
   a) Name accordingly: Areas – area#; Tie Alignments – T#
2. **Description:** fill in. (optional)
3. **Style: rowplat - #** The # is based on the scale being used for the plat.
4. Under **Graphical Input > Start**
5. Click near the Cogo points or type in Cogo point numbers in Alignment Definition box
   a) Run area clockwise from tie
6. Under **Graphical Input > Stop**
7. **Apply**
8. This command will be repeated to establish all the alignments for calculating areas.

CREATING THE TABLE FOR PLATS

To compose the table for the area alignments, establish the attributes.

1. **Geometry > View Geometry > Horizontal Annotation**
   a) **Preference**
      1. Select **rowplats**
      2. **Load, Close**.
   b) **Main** Tab under **Horizontal Alignments**
      1. **Click** inside **Include:** box > **Filter**
         a) Select alignment names. Start with the ties then, the area. (ex. **Include:** T#, area#, T#, area#, …)
   c) **Tabling** Verify the seed numbers are set to desired numbers.
   d) **Apply**

NOTE: Following the example above will create one table with all the line/curve bearing & distance in the order entered.

2. A **Report Browser** is generated, select **SDDOT**, then **Exhibit Table.xsl, ROWTable.xsl** or **ROWTableCurve.xsl.**
3. **Highlight** and **Copy** the text from the .xml report into the file. Use **Ctrl v** to paste into MicroStation.

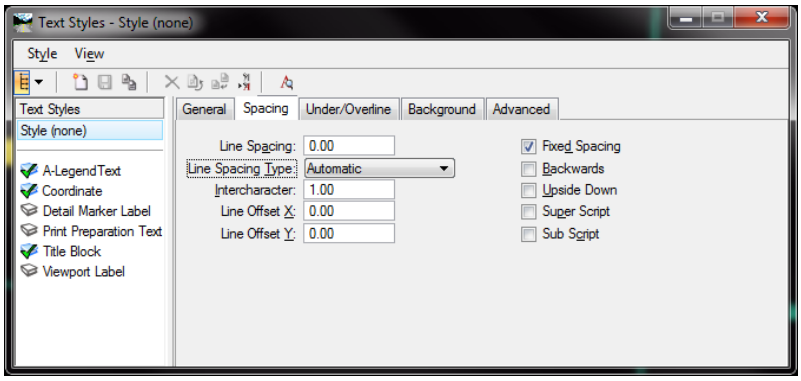
	Bearing	Length
L1	N 87°41'31" E	36.46
L2	N 87°41'31" E	16.00
L3	S 02°41'53" E	7.00
L4	S 87°18'07" W	16.00
L5	N 02°41'53" W	7.11

	Bearing	Length	Chord	Radius
C1	S 30°28'33" E	87.70	87.70	2764.79R
L1	S 60°25'59" W	49.47		
L2	N 00°49'51" W	100.00		

	Length
L1	593.04
L2	28.00
L3	36.00
L4	28.00
L5	36.00

NOTE: Do NOT edit table.

Line up the text columns by changing the text attributes. Select **Change Text Attributes**. Select the **magnifying glass**, the following **Text Styles** dialog box will appear:



a) Under **Spacing** tab
   1. **Check** box **Fixed Spacing**
   2. **Type 1.00** in **Intercharacter** box
   3. **Close**

b) Select the text just copied over.

c) Once table is updated, check **Fixed Spacing** Box and change **Intercharacter** to 0 in the **Text Styles** Dialog Box.

	Bearing	Length
L1	N 87°41'31" E	36.46
L2	N 87°41'31" E	16.00
L3	S 02°41'53" E	7.00
L4	S 87°18'07" W	16.00
L5	N 02°41'53" W	7.11

	Bearing	Length	Chord	Radius
L1	S 02°38'44" E	0.45		
L2	N 87°39'37" E	148.40		
C1	N 55°39'10" E	183.87	174.46	164.57L
L3	S 02°37'38" E	88.47		
L4	S 61°02'17" W	8.93		
L5	S 87°39'37" W	140.40		

	Length
L1	593±
L2	28.00
L3	36.00
L4	28.00
L5	36.00

AREA REPORT FOR PLATS

1. **Tools** > **XML Reports > Geometry**
   a) Under **Horizontal Alignments**
      1. **Include:** type in the alignment name or select it with the data point
      2. **Apply**.
   b) A **Report Browser** comes up, select **SDDOT**, then **ROW.xsl**
   c) If decimal place needs to be changed, while in Report Browser **Tools > Format Options > Area Units: 0**
   d) **Highlight** and **Copy** the text from the .xml report into the .dgn. Use **Ctrl v** to paste into MicroStation.

SET CORNER REPORT & PLANS

When it is determined which Cogo points will be shown as set corners on the project, those points will need to be edited by adding a description and changing the style.

1. **Geometry > COGO Points > Edit**
   a) Select Data Point or Type Cogo point number, if known
   b) **Description:** type in **HWYROW, BARCAP** or leave as is, when a description is included. This identifies the Cogo point as a highway right of way corner, property corner or P.L.S.S. corner.
   c) **Style:** Select one of the six available styles (Found PLS Corner, Found Property Corner, Found ROW Corner, Set PLS Corner, Set Property Corner, Set ROW Corner). This identifies the Cogo point as a found or set highway right of way corner, property corner or P.L.S.S. corner.
   d) **Apply**

2. Create the Set Corner Plans.
   a) Create copies of …row.dgn and title.dgn. Save in the …temp\right of way folder.
   b) Rename …row.dgn to …set.dgn and title.dgn to titleset.dgn.
   c) Edit the …set.dgn
      1. **Tools > Reference > References**
         a) Turn off all reference files **EXCEPT** references rPCN#.dgn and planrow.bdr.
         b) Turn on level 50 and turn off levels 1, 2, 13 and 21 in reference rPCN#.dgn.
         c) Turn off levels 10, 15, 21 and 36 in the active file …set.dgn.
         d) Update the Name cell. (Revision dates are not shown on this set of Plans.)
   d) In Print Organizer, manipulate the PCN#_Set CornersPlans.pset properties.
      1. **Edit > Properties > Display**
         a) Turn on Fill.

3. Create the PDF. The destination name will be the same as the .pset.
   a) Print using steps 3 and 4 in **PRINTING TO AND FROM THE .PDF.**
   b) Add the Set Corners Plans Legend stamp in the upper right corner of the Title Sheet.
   c) Save .pdf in the Project Staking folder.

4. **Tools** > **XML Reports > Geometry**
   a) **Geometry Report**
   b) Under **Cogo Points**
      1. **Include:** Select Data Point (for one) or click in box (for multiple)
         a) If clicked in box, select **Filter**
         b) **Available:** Sort by Styles created in step 1c. **Style > Add > OK**
   c) **Apply**
   d) A **Report Browser** displays, select **SDDOT**, then **Set Corners.xsl**

5. Save this Report in the Staking folder of the corresponding project.
   a) **File > Save As > PCN#_Set Corners.csv**
   b) Adjust the elevation on all points in the report. (Average from Data Control Sheet.)

NOTE: Ensure the RDLS reviews these points. Adjust according to the RDLS comments.

FOUND CORNER COORDINATES

1. **Turn Delete Ink Lock Off**
2. **Geometry > View Geometry > Horizontal Annotation**
   a) Under **Apply Style**
      1. **Active**
      2. **Cogo Points: rowfcoor** - # (# is scale of plat)
   b) Under **Cogo Points**
      1. **Include:** Select Data Point (for one) or click in box (for multiple)
         c) If clicked in box, select **Filter**
         d) **Available:** Sort by Style and select all **row-found > Add > OK**
   c) **Preferences >** row-cogo-points
      1. **Load > Close**
   d) **Apply**

LABELING STATIONING & STATION OFFSET

1. **Geometry > View Geometry > Station Offset Annotation**
   a) **Method: Clearance**
   b) Under **From**
      1. **Horizontal Alignment: Mainline**
   c) Select **Preferences**
      1. Select **ROWoffsta** (station offset) or **ROWsta** (stationing)
      2. **Load > Close**
   d) Under **To**
      1. **Annotate:** Select points or type them
   e) **Apply**

PRINTING TO & FROM THE .PDF

1. Open a MicroStation dgn and select **File > Print Organizer**
2. Creating a new .pset
   a) **File > Add Files to Set > Add >** Select desired files > **Done**
   b) Select **Magnifying Glass** > Select desired print style > **Ok**
   c) Right click **Title** sheet (right column) > **Properties**
      1. **Main** Tab under **Area**
      2. First change **View: TITLER**
      3. **Print Area: Fence**
      4. **Ok**
   d) **File > Save As >** PCN#_ROWPlans.pset or PCN#_Plats.pset **> Ok**
3. Creating PDF
   a) **File > Print** The destination name will be the same as the .pset
4. Printing PDF
   a) **File > Print**
   b) Under **Form Settings:**
      1. Check **Auto-Select Paper Size**
   c) Under **Page Handling:**
      1. **Page Scaling:** Select **None**
   d) **Apply > Print**

NOTE: When updates or revisions occur **ONLY** replace the updated pages in the .PDF.

ADDING & REMOVING PRELIMINARY BORDER

1. Open **PCN#_ROWPlans.pdf**
2. Reduce File Size
   a) **Document > Process > Reduce File Size**
   b) **Reduce File Size** Dialog Box: **OK**
   c) Save As Dialog Box: **Save > Yes**
      1. Ensure correct file is selected before replacing.
   d) **Close**
3. Adding Preliminary Border
   a) **Document > Pages > Apply Stamp**
   b) Select **Background_Preliminary.pdf** from drop down **> OK**
4. Adding Page Numbers
   a) **Document > Headers & Footers > Add**
   b) Header & Footer Dialog Box: Add page number information > **OK**
5. Flattening Document
   a) **Documents > Flatten**
   b) Flatten Markup Dialog Box: Check **Assign Layer** and type **Preliminary** into drop down box **> Flatten**
6. **Save** Document
7. Removing Preliminary Border
   a) **Layers >** Select **Preliminary >** Right click **Delete**
   b) **Save** Document

ADDING HW07 PARCEL INFORMATION

1. Open **HW07 ROW Parcel Inventory**
2. Under **Search For**
3. **PCN:** Type in PCN# > **Search**
4. **Parcel** > **Create Parcel from Strip**
   a) **Create All Parcels** or **Select strips** > **Create Individual Parcels**
   b) **Close**
5. Under **Search For**
   a) **Parcels**
6. Double click on Parcel wanting to edit
   a) Under **Parcel**
      1. **Parcel #:** Renumber according to plat/plans (needed for all types of parcels)
      2. **Property Description:** Edit to match plat/plans (needed for all types of parcels)
      3. **Taking Note – Lot(s)/Acre/Square Feet:** Note will match what is on the plat (needed only for plats)
      4. Verify Landowner Name
7. **Parcel** > **Delete Parcel(s)**
   a) Select Parcels not needed
   b) **Delete**

OMITTING PARCELS

1. Open **STA.dgn**
2. Changes needed on plat
   a) **Place Text** across plat reading **OMITTED**
   b) Add **Revised Date** & **Type** in original **Drawn By Date**s
3. Replot that individual plat and insert into the **Plats.pdf**
4. Open **STArow.dgn**
5. Edit Parcel Note on ROW plan sheet
   a) If multiple parcels exist under one ownership
      1. Only replace the ROW Taking note with Omitted
   b) If a single parcel exists under one ownership
      1. Replace entire note with Omitted
6. Replot the sheet and insert into the **ROWplans.pdf**

NOTE: Only replace the affected plats and sheets.

STAMPING CHECKED PLATS

1. **Open PCN#_plats.pdf**
2. Adding Stamp
   a) **Markup > Stamp > SDDOT checked By.pdf >** place on plats

NOTE: If Stamp doesn't show, run this batch file U:\rd\BluebeamConfigurationUtility\Bluebeam.bat.
NOTE: If your name doesn't show, edit User under **Settings > Preferences > General**
Option: For multiple stamping, set the **Snap To**: tool to **Reuse**.

3. To Save PCN#_plats.pdf
   a) **Document > Flatten > Flatten**
   b) **Save**

NOTE: Ensure the RDLS stamps the checked by when plats are completed and ready for release for Right of Way Office review and release to the Right of Way Office for use.

MISCELLANEOUS

A. In **Cogo**, the delimiters are as follows:
   a = **azimuth** between two points.
   g = **gradient** between three points.
   d = **distance** between two points.

B. To get a bearing and distance:
   1. Use the "**Inverse Direction**" command in the '**Geometry**' palette.
      Either data or key in the first point, then data the second point. The information will appear at the bottom of the screen.

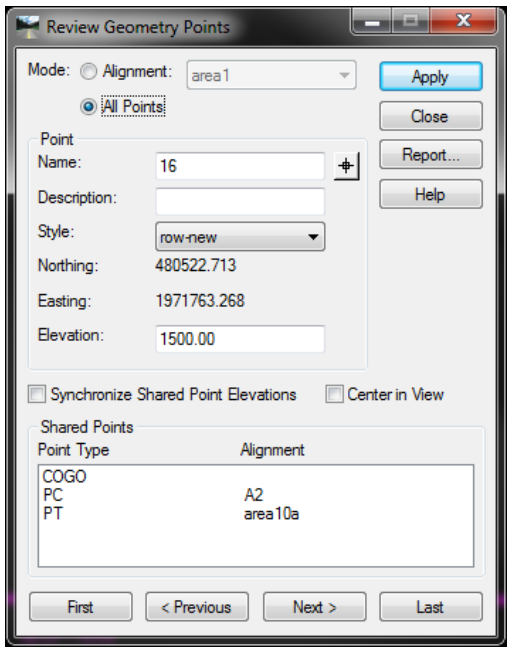
C. To get coordinates of the P.I.'s, annotate the alignment with "off element point numbers" on.

D. Always leave the AUTO PLOT lock on.

E. When creating a Cogo point between two alignments, insert the new Cogo point in the alignment using the "Horizontal Edit" command.

F. When storing an alignment and the following message appears “unequal curve radii”, review horizontal alignment (single alignment) for errors.

G. **Geometry > Review Geometry Points.**
1. Under **Mode**, toggle on **All Points**.
2. **Name:** type in the point number (in this case 16) or data the collapsible box and select a point graphically.
3. Tab and this will immediately give the coordinates of the point and will identify which alignment the point is associated with.



4. **Report…** will give a listing of all points with coordinates.

Proposed Right of Way Miscellaneous

1. State Government Plats
   a. School and Public Land Plat/Game, Fish and Parks Plat
      1. Parcels are to be no larger than a quarter-quarter section (40 acre tract).
      2. Do not hatch the existing right of way.
      3. Show 1/16 lines to designate each quarter-quarter section (40 acre tract).

2. Parcel numbers underline
   a. Select Text
   b. **Change Text Attributes** > **Browse** (next to Text Style)
   c. Under **Advanced** tab > under **Underline /Overline Goup** > **Underline Offset: .2** and **Underline Weight: 1**